

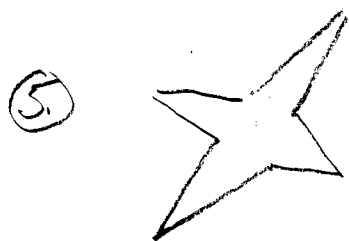
① Name and describe the 4 geometry transformations. Which ones are "congruent transformations"?

② $f(x) = \frac{3}{2}x - 5$ ④ $f^{-1}(x) = ?$

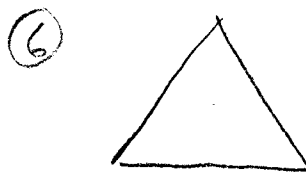
⑤ $f(4) = ?$

⑥ $f^{-1}(4) = ?$

Geometry I $\Rightarrow$ HW Reviews Pg 467 #5-7, 12-17, 24, 25



2 lines of symmetry
Yes, point symmetry



3 lines of symmetry
No point symmetry

⑦ see book $\Rightarrow$ 6 lines of symmetry
Yes, point symmetry



1 line of symmetry
no point symmetry



4 line of symmetry
Yes, point symmetry

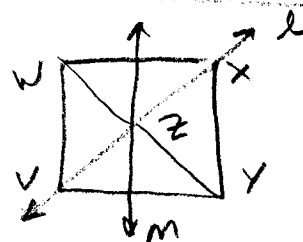
⑭ See Book $\Rightarrow$ Tiger Face $\Rightarrow$ 1 line of symmetry
Not point symmetric

Name reflected part
in line ℓ

⑮ $\overline{WX}$ $\dashv$ $\overline{YX}$

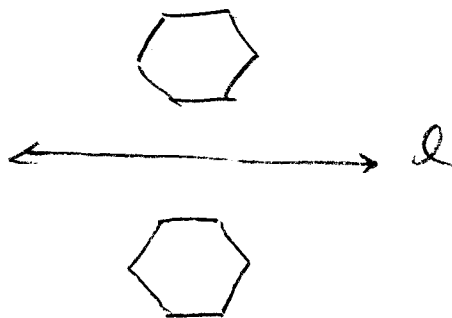
⑯ $\overline{WZ}$ $\dashv$ $\overline{YZ}$

⑰ $\angle XZY$ $\dashv$ $\angle XZW$

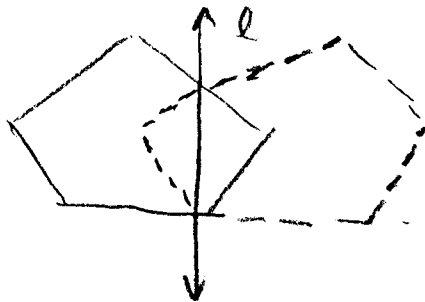


Reflect in line l

(24)



(25)



REFLECTIONS IN THE COORDINATE PLANE

A NOTATION THAT CAN BE USED
TO "map" A transformation OF A
point in the X-Y COORDINATE PLANE
IS:

$$P(2, -4) \rightarrow P'(2, 4)$$

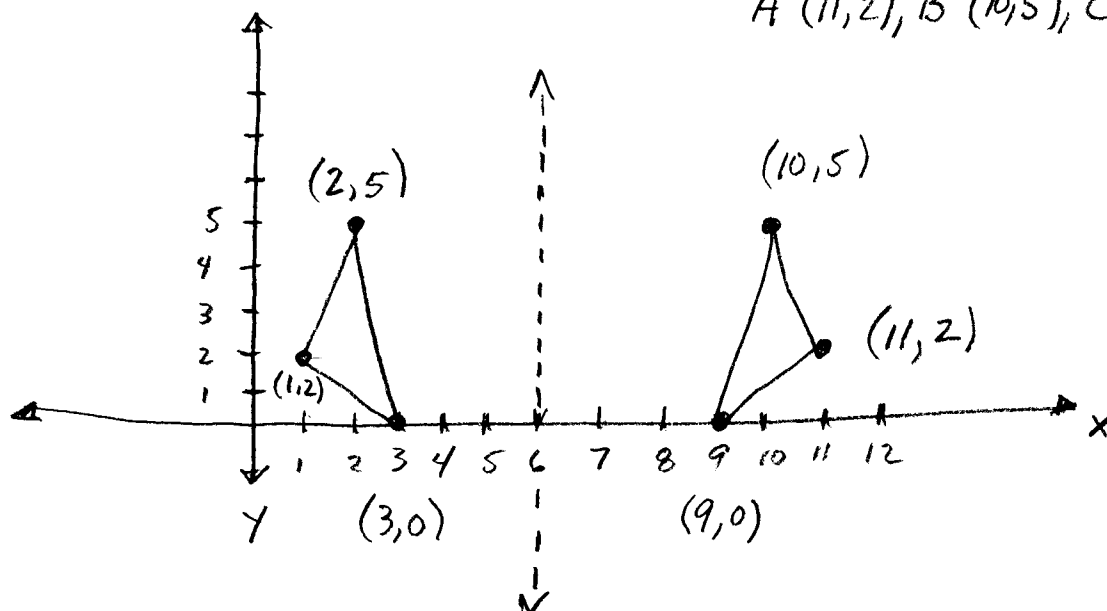
PREIMAGE

IMAGE

Read: Point P is mapped to Point P'

(EX) Reflect Δ WITH VERTICES AT $A(1, 2)$, $B(2, 5)$, $C(3, 0)$
ACROSS (or in) the line $x = 6$

$A'(11, 2)$, $B'(10, 5)$, $C'(9, 0)$



MATRICES ARE A POWERFUL WAY TO
EXPRESS A TRANSFORMATION ON THE
COORDINATE PLANE.

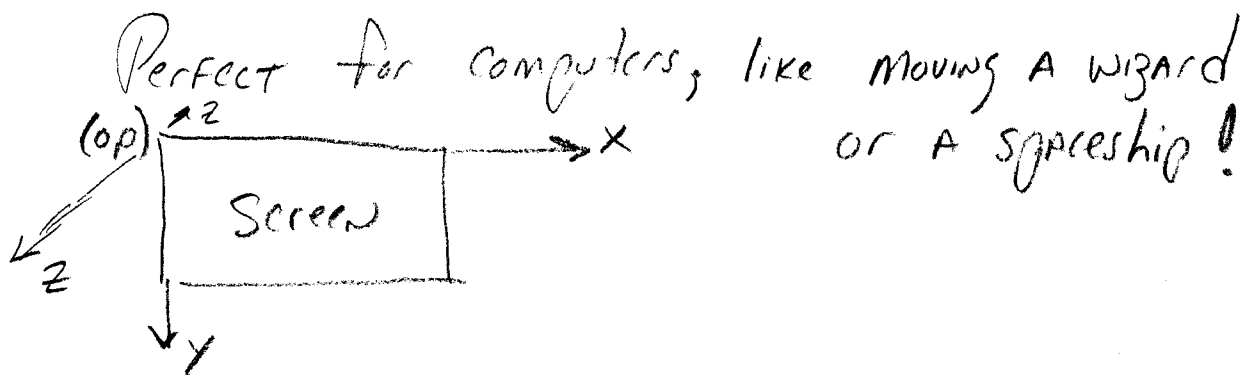
$$A_x = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} \quad A_y = \begin{bmatrix} 2 \\ 5 \\ 0 \end{bmatrix} \quad \text{POSITION OF } \Delta A$$

$$\text{LET } T_x = \begin{bmatrix} 12 \\ 12 \\ 12 \end{bmatrix} \quad \text{your transformation in the X direction}$$

$$A'_x = T_x - A_x \quad A'_y = A_y$$

$$A'_x = \begin{bmatrix} 12-1 \\ 12-2 \\ 12-3 \end{bmatrix} = \begin{bmatrix} 11 \\ 10 \\ 9 \end{bmatrix} \quad A'_y = \begin{bmatrix} 2 \\ 5 \\ 0 \end{bmatrix}$$

NEW POSITION OF
 $A' \Delta$



Three very common ^{line} reflections in the
X-Y Coordinate Plane are:

1. Reflections in the X-AXIS (ACROSS X-AXIS)
2. REFLECTIONS in the Y-AXIS (ACROSS Y-AXIS)
3. Reflections Across the line $y = x$



Recall: INVERSE FUNCTIONS ARE
SYMMETRIC ACROSS
this line

A common point reflection in the
X-Y Coordinate Plane is:

1. Reflection in the origin (POINT symmetry
About $(0,0)$)

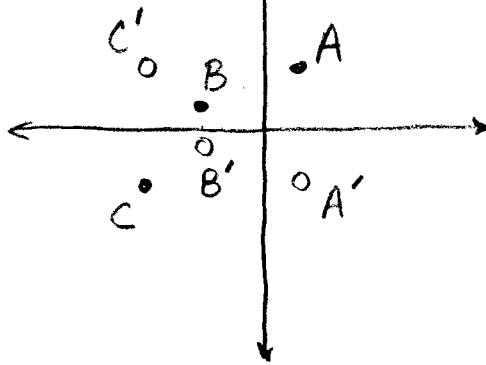
Examples 2 → 5 on Pages 464-465

* TABLE on Page 465

$$A(2,3) \rightarrow A'(2,-3)$$

$$B(-3,1) \rightarrow B'(-3,-1)$$

$$C(6,-3) \rightarrow (6,3)$$

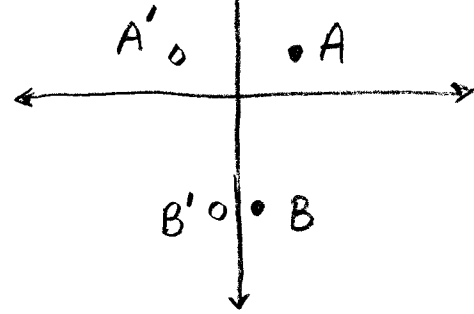


REFLECT ACROSS
X-AXIS

MULTIPLY Y BY -1

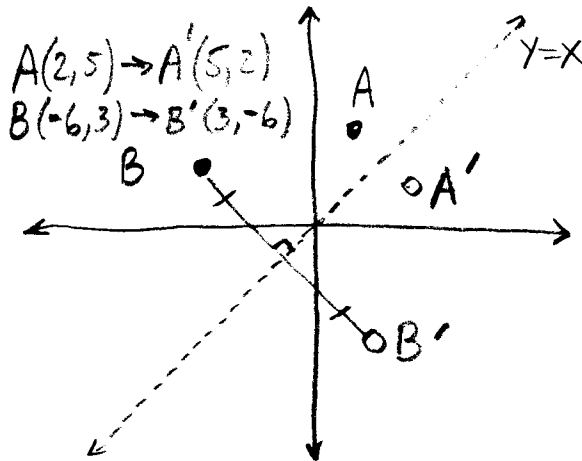
$$A(3,2) \rightarrow A'(-3,2)$$

$$B(1,-6) \rightarrow B'(-1,6)$$



REFLECT ACROSS
Y-AXIS

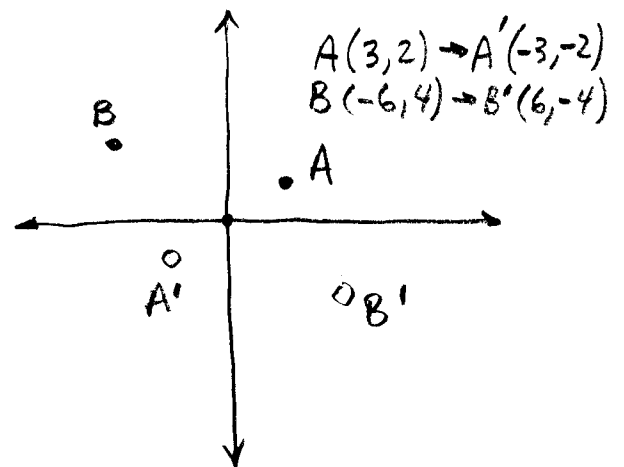
MULTIPLY X BY -1



REFLECT ACROSS
LINE $y=x$

SWAP X AND Y

INVERSE FUNCTIONS!



POINT REFLECTION
ACROSS (OR IN) ORIGIN

MULTIPLY X AND Y
BY -1

Homework: Pg 468 #27, 29, 30, 31, 32